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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/536,706

01/03/2006

Stewart E. Hooper

YAMAP0983US

9271

43076

7590

09/27/2007

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EXAMINER

MALEKZADEH, SEYED MASOUD

ART UNIT

PAPER NUMBER

1722

MAIL DATE

DELIVERY MODE

09/27/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/536,706	HOOPER ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	SEYED MALEKZADEH	1722	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 23 July 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 8-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                        |                                                                   |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date: _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/23/2005, 05/27/2005</u>                                    | 6) <input type="checkbox"/> Other: _____                          |

DETAILED ACTION

Response to Amendment

Claims 1-6 and 8-23 are pending.

In view of the amendment filed on June 23<sup>rd</sup>, 2007 following rejections/objections are withdrawn from the previous office action for the reason of record.

- Objection of claims 2-6 and 13-20

The following rejections are maintained for the reason of records as given in the previous office action. The bases of these rejections are the same as given in previous office action mailed on may 3<sup>rd</sup>, 2007.

- Rejection of claims 1-6, 8-12, and 21-23 under 35 U.S.C. 102(b) as being anticipated by Keller et al. (US 5,891,790)
- Rejection of claims 13-18 under 35 U.S.C. 103 (a) as being unpatentable over Keller et al (US 5,891,790) in view of Barnes et al. (US 2004/0214412)
- Rejection of claims 19 and 20 under 35 U.S.C. 103(a) as being unpatentable over Keller et al (US

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5,891,790) in view of hooper et al. (US  
2002/0,117,103)

Response to Arguments

Applicants' argument filed on July 23<sup>rd</sup>, 2007 have been fully considered but they are not persuasive.

Applicants argue that Keller et al. ('790) does not teach or suggest growing a p-type nitride semiconductor material by molecular beam epitaxy (MBE) by supplying bis (Cyclopentadienyl) magnesium ( $Cp_2Mg$ ) during the growth process.

This is not found persuasive because Keller et al. ('790) clearly disclose growing a p-type nitride semiconductor material by molecular beam epitaxy (MBE). (See lines 49-51, column 2) by supplying bis (Cyclopentadienyl) magnesium ( $Cp_2Mg$ ) during the growth process (See lines 63-67, column 3) as claimed in claim 1.

Further, applicants argue that Keller et al. ('790) does not teach or suggest using ( $Cp_2Mg$ ) in connection with an MBE process as recited in claim 1.

This is not found persuasive because Keller et al. ('790) first disclose Gallium nitride (GaN) film are

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currently being grown using a molecular beam epitaxy (MBE) technique (See line 49-51, column 2). Also, Keller et al. ('790) disclose the use of bis (Cyclopentadienyl) magnesium ( $Cp_2Mg$ ) to dope the gallium nitride with magnesium as a process step of MBE technique. (See lines 63-67, column 3). Also applicants' attention is drawn to this point that supplying bis (Cyclopentadienyl) magnesium ( $Cp_2Mg$ ) is a process step which is in the context of an MBE method. Therefore, Keller et al. ('790) clearly teach all the claim limitations of claim 1.

Therefore, rejection of claims 1-6 and 8-23 are maintained.

### ***Conclusion***

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the

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THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Masoud Malekzadeh whose telephone number is 571-272-6215. The examiner can normally be reached on Monday - Friday at 8:30 am - 5:00 pm.

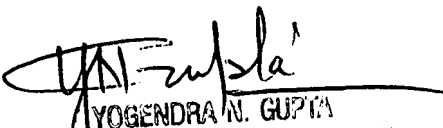
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra N. Gupta can be reached on (571) 272-1316. The fax number for the organization where this application or proceeding is assigned is 571-272-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For

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more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SMM

  
YOGENDRA N. GUPTA  
SUPERVISORY PATENT EXAMINER  
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